

Appl. No. 10/657,057  
Atty. Docket: 2003B093  
Suppl. Response After Final dated May 8, 2006

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### **REMARKS/ARGUMENTS**

Claims 1-48 and 92-151 are currently pending in the above-captioned application for the Examiner's reconsideration and review. No new matter has been added.

#### **Invention Synopsis**

The present invention is directed to the preparation of novel, molecular sieve-based, oxygenate-to-olefins (OTO) conversion catalysts which minimize formation of undesirable, metal-catalyzed, side-reaction by-products that can form during oxygenate conversion. Such catalyst compositions are prepared using clay matrix materials which contain less than specified very low amounts of certain metals including iron, titanium, nickel, cobalt, manganese and vanadium. The presence of catalytic amounts of these metals in oxygenate conversion catalysts, as sometimes introduced into prior art OTO catalysts as impurities in the clay matrix material, has been identified as the cause of the production of efficiency-diminishing by-products in the oxygenate conversion process. Accordingly, elimination or minimization of these metals in oxygenate conversion catalysts improves the overall cost effectiveness of the oxygenate conversion, e.g., methanol-to-olefins, processes in which these low-metal catalysts are used.

#### **Art Rejection**

Claims 1-48 and 92-151 were rejected under 35 USC §102(b) as allegedly being anticipated by Martens *et al.* (U.S. Patent No. 6,440,894, hereinafter "Martens"). The Examiner maintains the position that Martens discloses oxygenate conversion catalysts containing the same molecular sieves and clay matrix materials as those which the Applicants list as being suitable for inclusion in the instantly claimed catalysts. The metal content elements of the rejected claims are said to be inherent in the reference-disclosed materials since some of the names of the disclosed materials used are the same as those set forth in the instant application. Such a rejection over Martens is again respectfully traversed as it would apply to pending claims 1-48 and 92-151.

The Martens patent discloses molecular sieve-based oxygenate conversion catalysts which can contain clay matrix materials. Listed clays include "kaolins, commonly known as Dixie, McNamee, Georgia and Florida clays or others in which the main mineral constituent is holosite, kaolinite, dickite, nacrite or anauxite." It is acknowledged that there is no express disclosure in Martens of the metal content of any of the disclosed clays, and it is this silence

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---

concerning metal content which brings about this Section 102 rejection on an "inherent anticipation" theory.

According to the M.P.E.P., the Examiner is required to "provide rationale or evidence tending to show inherency." See M.P.E.P. § 2112(IV). Applicants respectfully draw the Examiner's attention to *In re Levy*, 17 USPQ2d 1461, 1464 (BPAI 1990), which held that "[i]n relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art." (first emphasis added, second emphasis in original). Applicants respectfully submit that the Examiner's mere acknowledgment of the similarity in name only of clay matrix materials such as kaolins, of places of origin such as Georgia or Florida, and even of specific tradenames such as Dixie or McNamee, does not in and of itself properly lead to the conclusion that such generically disclosed clays will inevitably, always, and inherently contain no more than the permitted amounts of metal contaminants specified in Applicants' claims. Indeed, aside from the similarity in name, the Examiner has repeatedly failed to place on the record any other factual basis or any sufficient technical reasoning to support her contention.

Applicants, however, have pointed out several times the lack of such basis/reasoning and have offered technically-based reasons why such inherency argument should not stand, which have been ignored, and with no further reasoning offered, by the Examiner. Applicant respectfully requests that the Examiner place her reasoning on the record and, due to the failure of the Examiner to do so to this point, further requests that the finality of the rejection be withdrawn.

Furthermore, Applicants remind the Examiner that only after "the Examiner presents evidence or reasoning tending to show inherency" is it proper to shift to the Applicants the burden of disproving inherency. See M.P.E.P. § 2112(V) (emphasis added) (citing *In re Fitzgerald et al.*, 205 USPQ 594). As the Examiner has failed to present any facts or technical reasons for assuming inherency, Applicants submit that the burden has not shifted.

Nevertheless, even assuming, *arguendo*, that the mere recognition of similarly named materials were somehow sufficient to shift the burden of disproving inherency to Applicants, Applicants respectfully submit that this burden has been met by their replies/arguments. For

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---

instance, in their Amendment dated January 13, 2006, Applicants have cited to the originally-filed specification at paragraphs [0063]-[0069] and [0071] and to a WHO article indicating that a wide range of metal contents can be present, particularly in naturally occurring clays. Applicants have also stated that because of such variability in metal contents of naturally occurring clays, the claimed maximum levels cannot be inherent. *See, e.g.*, Applicants' Amendment dated January 13, 2006. Even without documentary proof in clays of naturally occurring levels of iron (or iron-containing compounds) above 10,000 wppm, for example, Applicants have set forth the reasoning that the generally plentiful nature of iron-containing compounds such as iron oxides in the earth's crust can easily cause the iron content of naturally occurring clays to rise above Applicants' claimed maximum iron level of 10,000 wppm. Indeed, Applicants, and not the Examiner, have proffered technical reasons and cited facts, which indicate a lack of inherency. The Examiner has not even offered a rebuttal to this.

If, for some reason, even more proof of non-inherency is needed, Applicants draw the Examiner's attention to U.S. Patent No. 5,011,534 (the '534 patent). The table spanning columns 6 and 7 discloses a high and a low range of kaolin clays from a tertiary deposit that are high in iron content and high in titanium content. The '534 patent teaches that these kaolin clays, which are disclosed in both Applicants' instant application and in Martens, cited by the Examiner, have a range of iron oxide ( $\text{Fe}_2\text{O}_3$ ) contents between 1.2 (low) and 1.8 (high) wt%, which corresponds to 12,000-18,000 wppm iron oxide (and, incidentally, about 8,400-12,600 wppm on a pure iron basis). Applicants' claim 1, for example, recites a level of iron and iron-containing species of less than about 10,000 wppm. The '534 patent kaolin clays also contain a titania content between 2.0 (low) and 3.1 (high) wt%, which corresponds to 20,000-31,000 wppm titania (and, incidentally, about 12,000-19,000 wppm on a pure titanium basis). Applicants' claim 9, for example, recites a level of titanium and titanium-containing species of less than about 15,000 wppm.

Applicants respectfully submit that the '534 patent disclosure should sufficiently establish lack of inherency with respect to each and every one of the metals claimed, not merely for iron and titanium. Indeed, Applicants' remaining claims recite contents less than about 1,500 wppm for nickel, cobalt, manganese, and vanadium, and species containing same. This level is far lower than that for iron and titanium, such that Applicants further respectfully submit that it is

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not necessary to similarly track down samples of clays such as kaolin having metal contents higher than this. Applicants' point regarding naturally occurring clays has been made, particularly in the absence of any rebuttal by the Examiner.

Given the foregoing considerations, it is respectfully submitted that the Martens patent does not anticipate the catalyst composition and process-of-making claims herein. Accordingly, it is further submitted that continued rejection of these amended claims over the Martens reference under 35 USC §102 would be improper.

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### CONCLUSIONS

Applicants have made an earnest effort to distinguish their claimed invention from the applied prior art. WHEREFORE, reconsideration of this application, withdrawal of the claim rejection under 35 USC §102, and allowance of the claims, are all respectfully requested.

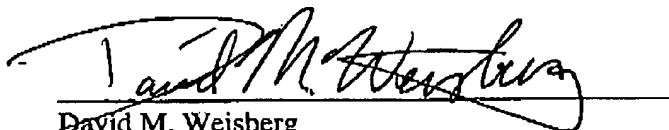
It is also respectfully requested that the Examiner expeditiously notify Applicants' undersigned attorney as to her position on Applicants' remarks presented herein.

Any comments or questions concerning the application can be directed to the undersigned at the telephone number given below

Respectfully submitted,

Date: \_\_\_\_\_

5/8/06



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